NOTE

EVIDENCE FOR SEVERAL SIBLING BIOLOGICAL SPECIES CENTRED ON *MYRMECIA PILOSULA* (F. SMITH) (HYMENOPTERA: FORMICIDAE)

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Abstract

Chromosome numbers of 2n = 2, 9, 10, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 30, 31 and 32 were found for *Myrmecia pilosula* (F. Smith). Karyotopic and morphological evidence indicates the presence of a "*M. pilosula*" complex with at least 3 biological species.

The common black Australian jumper ant *Myrmecia pilosula* (F. Smith) has been taxonomically discussed as a single biological species (Clark 1951; Brown 1953). However, recent studies have shown that these ants, found in all states of Australia (except Queensland and the Northern Territory), are not actually a single species but instead contain a range of chromosome numbers suggesting the presence of sibling species (Imai *et al.* 1977; Crosland and Crozier 1986).

Here we report new chromosome numbers for "*M. pilosula*" of 18-27 with all intermediate chromosome numbers being present (Table 1). Chromosome preparations were made from pupal and prepupal cerebal ganglia using the technique described by Imai *et al.* (1977). Voucher specimens from all colonies karotyped have been deposited in the Australian National Insect Collection, Canberra.

The "*M. pilosula*" complex contains at least 3 species.

The 2n = 2 species is karyotypically distinct from the other species and C-banding evidence (Imai unpubl. data) indicates no direct chromosomal homology with the 2n = 10 karyotype. Specimens from the only known 2n = 2 colony are morphologically distinguished from other "*M. pilosula*" species karyotyped by their especially strong dorsal sculpturing particularly on the node.

The n = 5 species is also distinct from the other species. It was found in lowlands (altitude 120 m), whereas all other "*M. pilosula*" species karyotyped were from higher elevations (620-1200 m). The 2n = 9 and 10 karyotypes reported by Imai *et al.* (1977) were from another lowland population of "*M. pilosula*" (altitude 80 m). Both populations of this species are morphologically distinguished from all other karyotyped "*M. pilosula*" (except the Black Mountain population) by the presence of pilosity on the head giving a slight greenish tinge.

Table 1. Chromosome numbers of *Myrmecia pilosula* from different populations (♂ indicates male and ♀ indicates worker)

Population	Altitude (metres)	Chromosome number (n), 2n	Number of colonies observed	Number of individuals observed	Total cell number observed
Tidbinbilla 35°26′E 148°56′S	820	(1), 2	1	55♂, 34♀	>1000
HMAS Albatross 34°56′E 150°32′S	120	(5)	1	4♂	28
Nerriga 35°05′E 150°10′S	730	21, 22, 23	3	14♀	59
Tidbinbilla 35°26′E 148°56′S	820	22, 23, 24	5	14♀	56
Black Mtn 35°17′E 149°06′S	620	18, 19	2	14♀	68
Wentworth Falls 33°33′E 150°22′S	870	(9, 10), 18, 19, 21	4	5♂, 14♀	41, 93
Lawson 33°43′E 150°26′S	670	(10, 11), 20, 21, 22, 24	6	12♂, 14♀	68, 63
Mt Victoria 33°36′E 150°16′S	980	(10, 11, 13, 15) 24, 25, 26, 27	4	5♂, 11♀	35, 71
Piccadilly Circus 35°22′E 148°49′S	1200	(16), 30, 31, 32	6	1♂, 16♀	3, 50

C-banding evidence (Imai unpubl. data) indicates that "*M. pilosula*" with chromosome numbers of 18-32 might all belong to the same species. Morphologically, however, all colonies of Tidbinbilla and Nerriga "*M. pilosula*" (with 2n = 21-24) were noticeably smaller than karyotyped "*M. pilosula*" from other populations.

Variation in chromosome number commonly occurs within single "*M. pilosula*" nests. Four different karyotypes (2n = 20, 21, 22, 24) were found out of 6 ants examined from a single nest at Lawson. The presence of multiple functional queens within single nests would contribute to the increased karyotypic variability of individual nests.

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